

In the Specification:

Please replace the paragraphs contained on Page 3, lines 14-24 through Page 4, lines 1-5 with the following amended paragraphs:

Point to multi-point fixed broadband wireless access systems over Multichannel Multipoint Distribution System (MMDS) networks are known in broadcast situations. These networks operate over licensed bands including the MMDS band (2,150 to 2,162 MHz), the Wireless Communication System (WCS) band (2,305 to 2,311 MHz) and the Institutional Television Fixed Service/ Multichannel Multipoint Distribution System (ITFS/MMDS) bands (2,500 to 2,686 MHz).

A known wireless broadband access system, which operates at a range of between 50 MHz and 864 MHz, but not in the MMDS, WCS, or ITFS/MMDS bands, is the data over cable specification system, which is specified in the data over cable system interface specifications (DOCSIS). An overview of a wireless DOCSIS system is depicted in Fig. 1. A Cable Modem Termination System (CMTS) 10 communicates with a wide area network 20, such as the Internet. The CMTS 10 can transmit signals from the wide area network 20 along a cable network 30 through cable modems 40 to Customer Premise Equipment (CPE) 50. CPE 50 messages can be transmitted to the wide area network 20 through the cable modem 40 along the cable network 30 to the CMTS 10.

Please replace the paragraphs contained on Page 6, lines 20-24 through Page 7, lines 1-24 with the following amended paragraphs:

The present invention may also ~~mebe~~ embodied as a wireless communication system, comprising, a wireless hub configured to send downstream communications on at least one of a set of predefined downstream channels and receive upstream communications on at least one of a set of predefined upstream channels, at least one wireless modem (e.g., see Fig. 6A/6B CPE 600/605) configured to receive said downstream communications, and send said upstream communications, wherein said wireless modem comprises, an acquisition unit (e.g. acquisition unit 620) configured to acquire a predefined downstream channel transmitted by said hub and read DCD messages describing available downstream channels, a scanning unit (e.g. scanning unit 630) configured to scan the available downstream channels, and a selection unit (e.g.

selection unit 640) configured to select the best available downstream channel. In one embodiment, illustrated in Fig. 6A, the wireless modem (e.g., CPE 600) further comprises a channel quality unit configured to build a list of available channels indicating a quality of reception on each channel. In another embodiment, illustrated in Fig. 6B, the wireless communication system (e.g., including CPE 605) further comprises a channel change unit 660 having a frame error rate indicator 652 configured to identify when a frame error rate of a current downstream channel is unacceptable, and a re-locking mechanism 654 configured to acquire a new downstream channel.

The present invention also includes Aa communication device, comprising, a hub (e.g., see Fig. 7, Hub 700) configured to send downstream communications on at least one of a set of predefined downstream channels and receive upstream communications on at least one of a set of predefined upstream channels, wherein: said hub includes a DCD message generator (e.g. DCD Message Generator 730) that constructs at least one DCD message sent on said downstream channels, and said at least one DCD message defines all downstream channels utilized by said hub; In one embodiment, as illustrated in Fig. 6C, the present invention is a modem unit (e.g. CPE 607) for use in a communication system, comprising, a reception unit configured to receive downstream communications on a current downstream channel, and a downstream channel selection unit to read DCD messages received by said reception unit and select a best available channel as said current downstream channel from priorities contained in said DCD messages. In more detail, the modem unit may further comprise a transmission unit configured to transmit data from said device on a current upstream channel, and an upstream channel selection unit configured to select the current upstream channel based on priorities of upstream channels described in an UCD message received by said reception unit. In one embodiment, the upstream channel selection unit and said downstream channel selection unit include a change channel mechanism configured to change either the current upstream channel or current downstream channel based on the priorities contained in the respective DCD and UCD messages.

The present invention also includes and a modem unit for use in a communication system, comprising, a reception unit (e.g. Reception Unit 680) configured to receive downstream communications on a current downstream channel, and a downstream channel selection unit (e.g. Downstream Channel Selection Unit 684) configured to read DCD messages received by said reception unit and select a best available channel as said current downstream channel from priorities contained in said DCD messages. In one embodiment, the modem unit further

comprises a transmission unit 682 configured to transmit data from said device on a current upstream channel, and an upstream channel selection unit 688 configured to select the current upstream channel based on priorities of upstream channels described in an UCD message received by the reception unit 680. In one embodiment, the upstream channel selection unit 688 and the downstream channel selection unit 684 include a change channel mechanism 686 configured to change either the current upstream channel or current downstream channel based on the priorities contained in the respective DCD and UCD messages.

Please replace the paragraphs contained on Page 8, line 22 through Page 10, line 3 with the following amended paragraphs:

Fig. 4 is a flow chart illustrating changing of a downstream channel according to an embodiment of the present invention; and

Fig. 5 is a flow chart illustrating acquisition of an upstream channel according to an embodiment of the present invention;

Fig. 6A is a drawing of a Customer Premise Equipment (CPE) including acquisition, scanning, and selection units according to an embodiment of the present invention;

Fig. 6B is a drawing of a CPE including a channel change Unit according to an embodiment of the present invention;

Fig. 6C is a drawing of CPE including a channel change mechanism according to an embodiment of the present invention; and

Fig. 7 is a drawing of a hub utilizing a Downstream Channel Descriptor (DCD) message generator according to an embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring again to the drawings, wherein like reference numerals designate identical or corresponding parts, and more particularly to Fig. 2 thereof, there is illustrated, in the presently preferred embodiment, a single carrier modulation scheme is selected for both downstream communication 440120 and upstream communication 420130, between a wireless hub 430100 and a wireless modem 440110. The wireless modem 440110 can be one of a plurality of wireless modems (e.g. wireless modems 110, 112, 114, and upstream communications 130, 132, and 134 respectively) in communication with the wireless hub 130. The selection of a single

carrier modulation scheme allows for the flexibility of multiple single carrier constellations, multiple channel bandwidth, multiple roll off factors, multiple symbol rates, multiple FEC schemes and multiple preambles (upstream only). Further, the wireless modem can be considered a customer premises indoor unit (CPE IDU) that communicates with a customer premises outdoor unit (CPE ODU), that includes the transmission and reception equipment for the customer device. The wireless hub also utilizes one or more outdoor and indoor units, each set of which can be referred to as a Wireless Modem Termination System (WMTS) or Base Station (BS).

Please replace the paragraph contained on Page 12, lines 5-8 with the following amended paragraph:

Although ~~Table~~Tables 1 and 2 specify QAM and QPSK constellations, other constellations such as BPSK and other modulation types may be utilized in conjunction with the present invention without departing from its scope.

Please replace the paragraph contained on Page 16, lines 9-12 with the following amended paragraph:

There may be more than one channel descriptor in one DCD message. Each channel description (see table 6) defines one channel. There is no difference between the formats of ~~preceeding~~preceding and subsequent channel descriptions.

Please replace the paragraph contained on Page 17, lines 5-15 with the following amended paragraph:

All other parameters are presently preferred to be coded as Time Length Value (TLV) fields, as defined in DOCSIS RFI specification 6.2.1.3.2. The advantage of TLV fields for application of the present invention is the flexibility to allow different field combinations in the message being transmitted and the ability to upgrade by adding additional types while maintaining backward ~~compatibility~~compatibility. The type values used are defined in table 5, for sector parameters, and table 6, for downstream channel attributes. Sector-wide parameters (types 1-2 in Table 3) are presently preferred to be required to precede channel descriptors (type 3 below).

Please replace the paragraph contained on Page 29, lines 8-24 with the following amended paragraph:

a. A control channel that may be optionally pre-configured locally or remotely to the CPE-IDU. A list of standard control channels may be optionally pre-configured into the wireless modem. In addition, the control channel identification may be changed during operation by one or more of the following methods: (i) locally, by a technician, (ii) remotely, by using the SNMP to transmit instructions during downstream communication, (iii) remotely, using a unidirectional service mode, such as described in U.S. Provisional Patent Application Serial No. 60/178,303, now U.S. Patent application ~~_____,_____,_____~~ 6,594,467, which is incorporated herein by reference, in its entirety, as an example; and (iv) remotely, in a DCD message transmitted during a previous operating session of the wireless modem. If the wireless modem cannot lock on a control channel or the specific implementation does not make use of control channels or the wireless modem has not configured with the control channels list, the CPE-IDU will skip this step.